

Press release: User case study

More expertise. Lower costs.

How sinit is unlocking the full potential of digital assistance systems with ENGEL [iQ.boost training](#) – and achieving measurable savings.

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The digital assistance systems were already in place – but it was hands-on training that made them an integral part of day-to-day production. Today, sinit has halved its complaint rate, reduced start-up rejects by one third and is saving a total of €87,500 a year.

At sinit's injection moulding facility in Rödental, materials, moulds and requirements change from one day to the next. The company manufactures more than 1,200 active products for sectors ranging from electrical engineering and automotive to aerospace, processing materials with glass-fibre contents of up to 60 per cent and meeting stringent flame-retardancy requirements. Twenty tie-bar-less ENGEL victory machines operate here in production cells featuring integrated viper linear robots and digital assistance systems such as iQ weight control, iQ clamp control and iQ flow control, all connected to the central shopfloor monitoring production system.

But sinit came to realise that technology alone was not enough. Although all the digital assistance systems were available, they were not being used. Operators lacked confidence and were reluctant to activate them. ENGEL's iQ.boost training enabled sinit to bridge the gap between investing in technology and realising its full potential in series production.

The plastics centre of excellence within Wöhner Industries Holding

sinit is part of Wöhner Industries Holding and is responsible for all plastics-related activities within the group. "We are the strategic plastics unit, covering everything from advice on designing assemblies for plastics and mouldmaking through to the production and assembly of complete components," explains Alessandro Sattler, Director Technical Operations at sinit. The Rödental site serves a broad range of markets. Electrical engineering, its main and highly volatile market, demands rapid availability combined with exacting quality standards. Other areas include automotive interiors, household goods and the processing of high-performance polymers for safety-critical applications. "Ultimately, every market demands the same things: highly efficient production, high quality standards and, above all, availability," says Sattler.

Material diversity and wear: the particular challenge

At sinit, materials containing up to 60 per cent glass fibre are frequently processed in combination with flame-retardant additives. This presents specific production challenges. "Flame-retardant materials in particular are corrosive. Once the protective coating is compromised, wear progresses very quickly when glass fibre is also involved," explains Mike Stößel, Head of Plastics Production at the Rödental site. The plasticising screws previously had a service life of just 18 months.

Over an extended period, sinit worked with ENGEL to develop alternative wear-protection concepts. "We opted for a different configuration and are now significantly exceeding the previous service life," Stößel confirms. sinit also uses a computed tomography scanner in its quality laboratory to analyse material structures and inspect mechanical assemblies. This saves a considerable amount of time when identifying the root causes of malfunctions.

Why one machine manufacturer makes sense: 20 tie-bar-less ENGEL victory machines

sinit operates an all-ENGEL injection moulding facility, with clamping forces ranging from 500 to 3,000 kN. "Using machines from a single manufacturer is a major advantage for operators because they do not have to keep switching between different control systems," says Stößel, explaining the decision. Against a backdrop of normal staff turnover and a shortage of skilled workers, this significantly reduces the time needed to train new employees. Every production

cell is equipped with a viper linear robot whose control is fully integrated into the machine control unit: one operating system, one data backup and one user interface.

With more than 1,200 active products, the tie-bar-less design of the victory series delivers clear operational benefits. "I have far more freedom in the mould area, can use the full width of the mounting platens and can even run production on machines with a lower clamping force," Stößel explains. Low ceiling heights at the Rödental facility are another practical consideration. "The tie-bar-less machine allows us to change large moulds in ways that simply would not otherwise be possible," Sattler adds.

Digital assistance systems in practice

At sinit, the ENGEL injection moulding cells are equipped with the iQ clamp control and iQ weight control digital assistance systems. Practical examples clearly demonstrate the benefits.

sinit conducted an internal comparison to determine the optimum clamping force. "We deliberately staged a small contest – operator versus machine – and found that the machine determined the clamping force both faster and more accurately," Sattler reports. On average, the clamping forces calculated automatically required three per cent less energy than the manually determined settings. There was another benefit that cannot be expressed directly in energy figures: improved mould venting and, as a result, less scrap. "With iQ clamp control, the result does not depend on the individual operator – I get the same outcome every time," Stößel emphasises. Particularly with flame-retardant materials that release high levels of gas, improved venting via the mould parting line provides an additional quality benefit. iQ weight control compensates for viscosity fluctuations within the same shot. These fluctuations are caused not only by differences between batches, but also by variations in drying levels and temperature, or even by draughts. "The more stable processes have reduced our start-up rejects by around one third," says Sattler. Depending on the product, mould and material, sinit calculates annual savings of around €2,500 for each injection moulding machine equipped with iQ weight control. Across its fleet of 20 suitably equipped machines, this adds up to €50,000. For new machines, the company now orders the licence from the outset whenever the application calls for it. Stößel sums up the overarching

objective: “We want our processes to be as reliable as possible and to enable unmanned production wherever feasible.”

The central issue: technology in place, but not in use

sinit had invested in the assistance systems, but they were not being activated in production. The obstacle was not technical; it was a lack of confidence among employees. “We realised that although we had the assistance systems, they were not actually being used. This was mainly because our colleagues were unsure and worried about making mistakes,” Sattler acknowledges. Stößel gets straight to the heart of the issue: “There is nothing worse than having high-tech equipment and being able to use only a fraction of its capabilities because people do not know how to apply it safely and effectively.”

The answer was ENGEL’s iQ.boost training. The two-day programme is designed for setters, machine operators and sampling personnel. It provides practical process expertise relating to the iQ assistance systems, combining theoretical principles with guided commissioning and documented trials using real products. sinit took a systematic approach to the training: first, employees attended conventional seminars at the ENGEL training centre; this was followed by three iQ.boost courses at sinit’s own plant, held in small groups of no more than five participants. “The key difference was that the training took place on our premises. We started on the virtual machine, followed by a day and a half of practical trials using our own products. That gave everyone the opportunity to try it for themselves,” Stößel explains. At the end of each course, sinit received a documented report detailing the measurable process improvements. “A PDF report suitable for management,” as Stößel puts it.

What changed after iQ.boost

The impact of iQ.boost can be seen on several levels. Most importantly, the systems are now actually being used. “We are seeing far greater confidence in their use, and the functionality we already had is now genuinely being utilised because employees understand how it works and what it does,” Sattler confirms. This delivered an immediate financial benefit for sinit, with the complaint rate falling by half. But something else changed too – something no report can capture. “Our aim is for operators to be able to decide independently which system to use in any given situation,” Stößel says, describing the shift on the shop floor. Employees

who previously hesitated now make the right process decisions proactively and with confidence. “The training programme is extremely important to us, and we will continue to invest in it in the future,” Sattler emphasises.

Shopfloor monitoring: real-time data as a common language

sinit uses ENGEL shopfloor monitoring to provide the production transparency it needs. For Stößel, as production manager, it provides the basis for assessing performance every day. “Every company wants to know the reasons for downtime, its OEE and its quality rate. For me, it is important to gain a quick overview of how production is running.” Sattler adds the organisational benefits: “The data is available in real time – at any time and from anywhere. Everyone works from the same data, and we save several hours every day.” sinit has calculated exactly what that means. Production management, production planning and the three shift supervisors save the time previously spent manually recording data, following up queries and walking between departments. In total, that amounts to three hours a day, or around 750 hours a year based on 250 working days. At an assumed labour cost of €50 per hour, this equates to an economic benefit of approximately €37,500 a year.

A close partnership with rapid support

ENGEL understands sinit’s specific requirements. When configuring new production cells, ENGEL proactively highlights equipment details that might otherwise be overlooked. “ENGEL knows exactly how we operate. They have developed a very good understanding of how our business works,” says Sattler, describing what he values about the partnership. sinit also appreciates the injection moulding solutions provider’s flexibility when it comes to special requirements for peripherals, guarding and integrated automation solutions.

Thanks to the proximity of ENGEL’s Nuremberg site, service response times are generally under 24 hours. Stößel gives one example: a valve failed on a Thursday, and the replacement part would not normally have been available until the following Tuesday. “The service technician offered to remove the valve from a machine in the technical centre in Nuremberg. It was installed here the next morning and the machine was back up and running,” Stößel recalls. Five days of lost production capacity is extremely difficult to recover. It is in moments like these that the value of a dependable partnership becomes clear.

Conclusion

sinit demonstrates that investing in digital assistance systems is only the first step. One of the most important levers is giving operators the right skills and confidence. At sinit, ENGEL's iQ.boost training has bridged the gap between having the technology available and using it effectively in series production. A complaint rate cut by half, one third fewer start-up rejects, employees who use digital tools independently, and savings of approximately €37,500 from shopfloor monitoring alone plus €50,000 from iQ weight control: for sinit, with more than 1,200 active products and a commitment to cost-effective manufacturing in Germany, these are tangible competitive advantages.

Please send us a proof link to susanne.schroeder@engel.at upon publication, or alternatively a hard copy to: ENGEL Austria GmbH, Susanne Schröder, Ludwig-Engel-Straße 1, A-4311 Schwertberg, Austria.

Images: ENGEL

Image 01



A well-coordinated team: Alessandro Sattler, Director Technical Operations at sinit, Tobias Theuerkauf of ENGEL Deutschland and Mike Stößel, Head of Plastics Production at sinit (from left).

Alt tag: Alessandro Sattler, Tobias Theuerkauf and Mike Stößel standing in front of an ENGEL injection moulding machine at sinit's production facility in Rödental.

Image 01 – alternative



Image 02



Manufacturing electrical components on an e-victory 140.

Alt tag: ENGEL e-victory 140 injection moulding machine with automated part removal and container handling at sinit's production facility in Rödental.

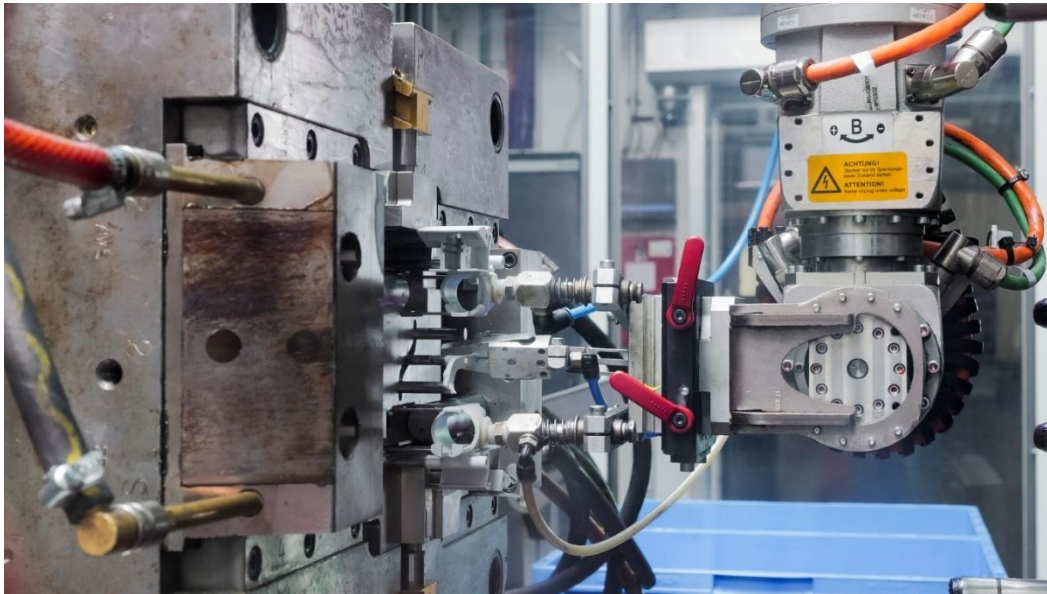
Image 03



Setting parameters for iQ weight control on the CC300 control unit.

Alt tag: Employee operating the touchscreen control of an ENGEL injection moulding machine at sinit.

Image 04



Manufacturing a fuse holder at sinit.

Alt tag: Automated removal of a plastic component from the injection mould at sinit.

Bild 05



Digital solutions optimise production processes and make day-to-day work at the machine easier.

Alt tag: Employee using digital assistance systems on the control unit of an ENGEL injection moulding machine.

ENGEL AUSTRIA GmbH

ENGEL is one of the global leaders in the manufacture of injection moulding machines. Today, the ENGEL Group offers a full range of technology modules for plastics processing as a single source supplier: injection moulding machines for thermoplastics and elastomers together with automation, with individual components also being competitive and successful in the market. With twelve production plants in Europe, North America, Mexico and Asia (China, Korea and India), and

subsidiaries and representatives in more than 85 countries, ENGEL offers its customers the excellent global support they need to compete and succeed with new technologies and leading-edge production systems.

Contact for journalists:

Susanne Schröder, PR-Manager, ENGEL AUSTRIA GmbH,
Ludwig-Engel-Straße 1, A-4311 Schwertberg/Austria
Tel.: +49 (0)160 96 29 0536, email: susanne.schroeder@engel.at

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